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Sites Listed for Survey Under '42 Appropriation For Airport Construction

\$94,977,750 Voted Will Provide For 149 New Projects

Locations of 191 airport sites to be surveyed for possible airport construction or improvement work under the \$94,977,750 appropriation to the Civil Aeronautics Administration for fiscal 1942, beginning July 1—finally approved by Congress June 20—have been announced by Administrator Donald H. Connolly.

The \$94,977,750 appropriation to the C. A. A. for airport work falls into two major categories: \$33,500,000 of it (to be supplemented by about \$42,000,000 in W. P. A. work) is for completion of the

250-airport program begun during the current year. The remaining \$61,000,000 is to launch improvement work on the 149 additional airports which will be selected after the surveys.

Although 191 airport sites will be surveyed, these locations are necessarily tentative, as only 149 can be selected finally under the law for construction work with 1942 funds, Administrator Connolly pointed out. He added that the final selections will be made, according to law, by the Approval Board, consisting of the Secretaries of War, Navy, and Commerce, on the basis of national defense importance. This is the same procedure required in the C. A. A. airport program for 1941.

General Connolly said the Approval Board will not take up final consideration of sites until all the information developed in the surveys is at hand. It is expected that the preliminary survey work will be completed in about 30 days.

As in the 1941 program, the Federal funds will not be spent for land or buildings, but only for improvement of actual landing areas. Local political subdivisions will be required to provide suitable publicly owned land, to construct whatever buildings are deemed necessary, and to maintain and operate the airport. Federal funds will go for grading and drainage, paving of runways, etc.

As in the current program, also, a variety of construction methods will be employed. In some cases, engineering

will be handled by the Army Engineer Corps on projects let by contract; in some cases, C. A. A. engineers will provide technical services on contract jobs; while in still another category, C. A. A. funds will be used to supplement W. P. A. airport projects, the Administrator said.

The \$40,000,000 appropriation for 1941 has resulted in a program of 250 airports being well advanced to meet defense requirements.

(See AIRPORTS, page 142)

7,399 C. P. T. P. Graduates Join Military Air Arms

A total of 7,399 graduates of the Civilian Pilot Training Program have volunteered and been accepted by the Army and Navy Air Services up to June 1, according to the quarterly census of more than 900 training centers throughout the country. The census was made public by Brig. Gen. Donald H. Connolly, Administrator of Civil Aeronautics. Simultaneously, he announced that a total of 1,279 C. A. A. instructors have joined defense units.

Trainees accepted and in training include 2,840 preliminary and 682 secondary for the Army, 1,095 preliminary and 520 secondary for the Navy—a total of 5,137.

The figures show that 1,672 C. A. A. preliminary training graduates have been accepted and are under orders, but have not yet reported for duty to the Army and Navy. Of these, 1,146 are on the Army waiting list, 526 on the Navy. A total of 359 secondary C. A. A. trainees are on the Army waiting list, with 231 ready to report for duty at the Navy.

Of the flight instructors from C. A. A. centers who are in defense work as of June 1, 661 are teaching in Army contract schools, 29 are instructing in the Navy, 170 in Canada, 130 are on active-

(See C. P. T. P., page 152)

Correction

In the tabulation appearing at the bottom of page 129 of CIVIL AERONAUTICS JOURNAL, Vol. 2, No. 11, dated June 1, the sum listed in both the Senate and House versions of the Civil Aeronautics Administration 1942 appropriation bill for "Establishment of Air Navigation Facilities" is in error. The correct figures are \$6,450,000 in the Senate bill and \$6,700,000 in the House bill.



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Airports

(Continued from page 141)

The surveys listed below include the present and proposed class of each airport. The minimum classifications for military use exceed commercial classifications by 500 feet in effective length of runways. For example, a Class 2 airport as listed below has minimum effective length of runways of 3,000 feet; a Class 3 airport, 4,000 feet; and a Class 4 airport, 5,000 feet. The number of necessary runways is governed, of course, by the directional variety of winds at the site.

The list of locations to be surveyed:

Region I

	State and Location	Present Class	Pro-posed Class
MILFORD-GEORGETOWN	DELAWARE	0	3

MAINE

Bangor # 2	2	3
Bar Harbor	2	3
Belfast	0	3
Brownville	2	3
Eastport	0	3
Fort Kent	2	3
Pittsfield	2	3
Portland	2	3
Princeton	0	3
Rockland	0	3
Showhegan	2	3
Winterport	0	3

MARYLAND

SALISBURY	0	4
MASSACHUSETTS		
Amherst	0	3
Bedford	3	4
Hyannis	1	3
Nantucket	1	3
Newburyport	1	3
Norwood	0	4

NEW HAMPSHIRE

Keene	0	3
Laconia	3	3
Portsmouth	1	3
Whitefield	0	3

NEW JERSEY

MILLVILLE	3	4
NEW YORK		

DANSVILLE	2	3
EAST HAMPTON	2	3
FARMINGDALE	0	3
GLENS FALLS	1	3
MALONE	1	3
PLATTSBURG	0	3
SARANAC LAKE	0	3
SCHENECTADY	2	4
WATERTOWN	1	3

PENNSYLVANIA

BRADFORD-KANE	0	3
RHODE ISLAND		

WESTERLY	1	3
VERMONT		

COVENTRY	0	3
RUTLAND	0	3

VIRGINIA

BLACKSTONE	3	3
FRANKLIN	1	3
FREDERICKSBURG	1	3
LIVELY	1	3
PETERSBURG	0	3
RICHMOND	3	4

FLORIDA

AVON PARK	1	3
BARTOW	1	3

State and Location

FLORIDA—Con.

	Present Class	Pro-posed Class
Clewiston	1	3
Cross City	2	3
DeLand	2	3
Dunneon	1	3
Fort Lauderdale	1	3
Fort Myers	3	4
Fort Pierce	2	3
Jacksonville	0	2
Kissimmee	1	3
Lakeland	2	4
Lake Wales	1	3
Leesburg	1	3
Marathon Key	0	1
Marianna	1	3
Miami	# 2	3
Naples	0	1
Okeechobee	1	3
St. Augustine	3	4
St. Petersburg	# 2	3
Sanford	0	1
Sarasota-Bradenton	3	4
Tampa	# 2	3
Winter Haven	1	3
Zephyrhills	1	3

GEORGIA

	Present Class	Pro-posed Class
Adel	0	1
Athens	1	3
Bainbridge	1	3
Brunswick	1	3
Cobb County	0	1
Columbus	0	1
Cordele	1	3
Gainesville	0	1
McRae	0	1
Roswell	0	1
St. Mary's	1	3
Statesboro	2	3
Thomasville	1	3
Tifton	1	3
Waycross	0	1

MISSISSIPPI

	Present Class	Pro-posed Class
Clarksville	0	1
Greenwood	0	3
Gulfport	0	4
Laurel	1	3
Pascagoula	1	3
Starville	1	3

NORTH CAROLINA

	Present Class	Pro-posed Class
Goldsboro	0	1
Manteo (Seaplane)	1	3
New Bern (Seaplane)	0	1
Rocky Mount	2	3

SOUTH CAROLINA

	Present Class	Pro-posed Class
AIKEN	1	3
Beaufort	1	3
Greenville	2	3
Orangeburg	1	3
Walterboro	1	3

Region III

INDIANA

	Present Class	Pro-posed Class
KOKOMO	1	3

KENTUCKY

	Present Class	Pro-posed Class
BOWLING GREEN	0	3
Paducah	1	3
FLINT	2	3

MICHIGAN

	Present Class	Pro-posed Class
JACKSON	2	3
KALAMAZOO	1	3
SAGINAW-BAY CITY	0	1

(See AIRPORTS, page 150)

1940 Air Carrier Accident Figures

Airlines Flew 119,517,263 Miles Last Year and Had Only 3 Fatal Accidents

Air carriers operating along domestic, international, and territorial routes flew 119,517,263 miles during 1940 and had only 3 fatal accidents, resulting in 3 pilot fatalities and 35 passenger fatalities, according to statistics compiled from reports of the Civil Aeronautics Board.

During the period under review, these carriers flew, 2,255,042 miles per accident, and a total of 1,265,164,059 passenger miles was reported.

The following tables show air-carrier accident statistics for 1940 with comparisons for 1939, 1938, 1937, and 1936. Table A contains totals for all domestic, international, and territorial scheduled air-carrier services.

Table B shows vital statistics and results of accidents of these carriers for the January-June and July-December periods of 1940, with break-downs as to domestic and international routes.

Table C shows vital statistics and results of accidents occurring in non-scheduled domestic air-carrier operations for the July-December periods for the years 1936-40.

Table D shows analysis of causes of accidents occurring in domestic non-scheduled operations for the July-December periods for 1936-40.

Table E shows vital statistics and results of accidents occurring in domestic scheduled air-carrier operations for the July-December periods of 1936-40.

Table F shows analysis of causes of accidents occurring in scheduled domestic air-carrier operations for the July-December periods of 1936-40.

Table G shows analysis of causes of accidents occurring in scheduled domestic, international, and territorial air-carrier operations for the January-June and July-December 1940 periods.

Table H shows analysis of causes of accidents of these carriers for the years 1936-40.

Table I shows vital statistics and results of all scheduled air-carrier operations for the years 1936-40.

Following are descriptions of the various classifications listed in tables B, C, and E:

I. Injury to personnel.—Under this head accidents are classified according to the injury suffered by persons.

Class A.—A "class A" injury is one resulting in the death of the individual within a period of 90 days.

Class B.—A "class B" injury is one resulting in serious injury to the individual. Because of the difficulties of classification, the opinion of a physician is obtained whenever possible as to whether an injury is severe or minor. When a physician is not available, the following general rules are followed: Any injury that results in unconsciousness; any fracture of any bone except simple fractures of the fingers and toes; lacerations that involve muscles or cause severe hemorrhage; any injury to any internal organ; or any other injury that it seems probable will incapacitate the individual for more than 5 days should be classed as a severe injury. All other injuries are classed as minor.

Class C.—A "class C" injury is one resulting in only minor injury to the individual.

Class D.—Any person who experiences an aviation accident with no personal injury shall be classified as "Class D."

Note.—The classification of an accident according to injury to persons shall contain a letter for each individual in the aircraft at the time of the accident, the first of these letters representing the pilot of the aircraft. For example, in an accident where the pilot is killed, one passenger seriously injured, and the remaining passenger escapes with only minor injury the accident would be classified as a class ABC accident. Had the pilot escaped with minor injury and both passengers been killed, it would have been a class CAA accident.

II. Damage to material.—Under this head accidents are classified according to the amount of damage which occurs to material.

Class A.—This includes all accidents as a result of which the aircraft is of no further value except for possible salvage of usable parts.

Class B.—This includes all accidents as a result of which it is necessary to completely overhaul the aircraft before it would be again airworthy.

Class C.—This includes all accidents as a result of which it is necessary to replace some major assembly of the aircraft before it would be again airworthy, such as a wing, fuselage, undercarriage, tail, or engine.

Class D.—This includes all accidents resulting in minor and easily repairable damage to the aircraft, such as a broken wheel, bent rudder, bent propeller, broken cylinder, broken oil cooler, etc.

Class E.—This includes all accidents in which there is no damage to material.

III. Nature of the accident.—Under this head accidents are classified according to the type of accident which occurs.

Class A—Collisions in full flight with other aircraft.—This includes collisions with airplanes, balloons, or other aircraft while the colliding aircraft is at flying speed or at an altitude which permits free maneuvering. It excludes collisions on the ground while taxiing, taking off, or landing. (See classes F and G.)

Class B—Collisions in full flight with objects other than aircraft.—This includes collisions while at flying speed and with engine functioning normally, with birds, towing lines, towed sleeves, trees, poles, wires, houses, mountain sides, or other objects. It includes collisions with the earth or water by diving. It excludes collisions on the ground while taxiing, taking off, or landing. It excludes accidents to an aircraft caused by parts of the same aircraft becoming detached in flight and flying back or striking other parts of the aircraft. (See classes F and G.)

Class C—Spins or stalls following engine failure.—This includes spins, stalls, and all collisions with the earth while the airplane is out of control due to loss of flying speed following engine failure.

Class D—Spins or stalls without engine failure.—This includes spins, stalls, and all collisions with the earth while the airplane is out of control due to loss of flying speed with the engine functioning normally. It includes spins due to defective handling qualities of the airplane.

Class E—Forced landings.—This covers accidents while making landings necessitated by conditions which could not be overcome while in flight.

(1) Emergency forced landings.—This covers accidents while making landings immediately necessitated by conditions which could not be overcome while in flight.

(2) Deferred forced landings.—This covers accidents while making landings necessitated by conditions which could not be overcome while in flight and which make continued flight inadvisable but do permit a reasonable time for the selection of a landing area.

Class F—Landing accidents.—This includes accidents occurring while the pilot is in the act of making a voluntary landing. It excludes forced landings, accidents while examining a field from the air or approaching it for a landing.

Class G—Take-off accidents.—This includes accidents occurring between the time of starting the take-off and the time when flying speed permitting normal control has been attained with sufficient altitude to permit free maneuvering.

Class H—Taxiing accidents.—This includes accidents which occur while the aircraft is being operated as such and is maneuvering under its own power on land or water.

Class I—Fires.—This includes all accidents in which fires occur while the aircraft is being operated as such. It excludes fires which are the result of collision.

(1) Fires in the air.—This includes all accidents in which fires occur while the aircraft is being operated as such in the air.

(2) Fires on the ground.—This includes all accidents in which fires occur while the aircraft is being operated as such on the ground.

Note—Fires after accident.—This is a secondary grouping for statistical purposes only, and should not be included under class I.

Class N—Structural failure.—This includes all accidents resulting in loss of control of the aircraft, as a result of a failure while in flight of any part of the aircraft structure or engine which is not due to contact with any external object.

Class X—Miscellaneous.—This includes accidents the nature of which is known but which do not fall into one of the above classifications.

Class Y—Undetermined.—This includes all accidents concerning the nature of which so little is known that any other classification cannot be intelligently made.

TABLE A.—Comparative Figures of Miles Flown per Accident and per Fatality in Domestic, International, and Territorial Scheduled Air-Carrier Services for the 5 Years 1936 Through 1940

	1936	1937	1938	1939	1940
Miles flown.....	71,211,726	74,700,237	78,197,239	90,976,063	119,517,263
Total number of accidents.....	70	50	44	39	53
Miles flown per accident.....	1,017,310	1,494,005	1,777,210	2,332,720	2,255,042
Total number of fatal accidents.....	10	6	8	3	3
Miles flown per fatal accident.....	7,121,173	12,450,040	9,774,655	30,325,354	39,839,088
Total number of pilot fatalities.....	9	5	6	2	3
Miles flown per pilot fatality.....	7,912,414	14,940,047	13,032,873	45,488,032	39,839,088
Passenger miles flown.....	480,818,839	534,858,652	617,829,923	834,818,242	1,265,164,059
Total number of passenger fatalities.....	46	51	32	19	35
Passenger miles flown per passenger fatality.....	10,452,583	10,487,425	19,307,185	43,937,802	36,147,545

TABLE B.—*Vital Statistics and Results of Accidents Occurring in Scheduled Air-Carrier Operations for the Periods January-June and July-December 1940 in Domestic, International, and Territorial Operations*

[For comparison with previous periods, see Civil Aeronautics Bulletin No. 3, AIRCRAFT ACCIDENTS AND CASUALTIES, AIR COMMERCE BULLETIN, Vol. 10, No. 11, dated May 15, 1939, and CIVIL AERONAUTICS JOURNAL, Vol. 1, No. 10, dated May 15, 1940.]

	January-June 1940			July-December 1940			Total		
	Domestic services	International and territorial services	Total	Domestic services	International and territorial services	Total	Domestic services	International and territorial services	Total
Number of accidents:									
Involving fatal injury.....	0	0	0	3	0	3	3	0	3
Involving severe injury.....	1	0	1	0	1	1	1	1	1
Involving minor and no injury.....	18	2	20	20	8	28	38	10	48
Total accidents.....	19	2	21	23	9	32	42	11	53
I. Injury to personnel:									
Pilots:									
Fatal injury, class A.....	0	0	0	3	0	3	3	0	3
Severe injury, class B.....	1	0	1	0	1	1	1	1	1
Minor injury, class C.....	0	0	0	1	0	1	1	0	1
Uninjured, class D.....	19	2	21	19	8	27	38	10	48
Copilots:									
Fatal injury, class A.....	0	0	0	3	0	3	3	0	3
Severe injury, class B.....	0	0	0	0	1	1	0	1	1
Minor injury, class C.....	1	0	1	1	0	1	2	0	2
Uninjured, class D.....	18	2	20	19	8	27	37	10	47
Passengers:									
Fatal injury, class A.....	0	0	0	35	0	35	35	0	35
Severe injury, class B.....	0	0	0	6	0	6	6	0	6
Minor injury, class C.....	4	0	4	2	1	3	6	1	7
Uninjured, class D.....	152	7	159	204	82	286	356	89	445
Aircraft crew:									
Fatal injury, class A.....	0	0	0	4	0	4	4	0	4
Severe injury, class B.....	0	0	0	0	1	1	0	1	1
Minor injury, class C.....	0	0	0	1	2	3	1	2	3
Uninjured, class D.....	15	10	25	23	18	41	38	28	66
Total injuries and noninjuries:									
Fatal injury, class A.....	0	0	0	45	0	45	45	0	45
Severe injury, class B.....	1	0	1	6	3	9	7	3	10
Minor injury, class C.....	5	0	5	5	3	8	10	3	13
Uninjured, class D.....	204	21	225	265	116	381	469	137	606
Total.....	210	21	231	321	122	443	531	143	674
II. Damage to material:									
Airplanes:									
Completely demolished, class A.....	0	0	0	3	1	4	3	1	4
Complete overhaul, class B.....	6	0	6	4	0	4	10	0	10
Major assembly repairs, class C.....	11	2	13	5	3	8	16	5	21
Minor repairs, class D.....	5	0	5	12	5	17	17	5	22
III. Nature of accident:									
Collision (see definition), class A.....	0	0	0	0	0	0	0	0	0
Collision (see definition), class B.....	3	0	3	2	0	2	5	0	5
Spin or stalls (engine failure), class C.....	0	0	0	0	0	0	0	0	0
Spin or stalls (not engine failure), class D.....	0	0	0	0	0	0	0	0	0
Forced landings, class E.....	0	0	0	2	1	3	2	1	3
Landing accidents, class F.....	9	0	9	16	5	21	25	5	30
Take-off accidents, class G.....	1	1	2	0	2	2	1	3	2
Taxying accidents, class H.....	4	1	5	3	1	4	7	2	9
Fires in the air, class I.....	0	0	0	0	0	0	0	0	0
Structural failure, class N.....	0	0	0	0	0	0	0	0	0
Miscellaneous, class X.....	2	0	2	0	0	0	2	0	2
Indeterminate and doubtful, class Y.....	0	0	0	0	0	0	0	0	0
Miscellaneous information:									
Propeller accidents to persons.....	0	0	0	0	11	11	0	11	11

1 ground personnel fatal injury.

TABLE C.—*Comparative Figures in Vital Statistics and Results of Accidents Occurring in Non-scheduled Domestic Air-Carrier Operations For the July-December Periods For the Years 1936 Through 1940*

	July-December 1936	July-December 1937	July-December 1938	July-December 1939	July-December 1940	Average for the 5 periods
Number of accidents involving:						
Fatal injury.....	2	0	0	0	0	.4
Severe injury.....	1	0	0	0	0	.2
Minor and no injury.....	4	7	3	4	3	4.2
Total accidents.....	7	7	3	4	3	4.8
I. Injury to personnel:						
Pilots:						
Fatal injury, class A.....	2	0	0	0	0	.4
Severe injury, class B.....	1	0	0	0	0	.2
Minor injury, class C.....	0	1	0	0	0	.2
Uninjured, class D.....	4	6	3	4	3	4.0

TABLE C.—Comparative Figures in Vital Statistics and Results of Accidents Occurring in Non-scheduled Domestic Air-Carrier Operations for the July-December Periods for the Years 1936 Through 1940—Continued

	July-December 1936	July-December 1937	July-December 1938	July-December 1939	July-December 1940	Average for the 5 periods
Number of accidents involving—Continued.						
I. Injury to personnel—Continued.						
Copilots:						
Uninjured, class D.....	1	3	2	2	2	2.0
Passengers:						
Fatal injury, class A.....	2	0	0	0	0	.4
Minor injury, class C.....	0	5	0	0	0	1.0
Uninjured, class D.....	0	17	5	3	13	7.6
Aircraft crew:						
Fatal injury, class A.....	5	0	0	0	0	1.0
Uninjured, class D.....	1	6	2	0	4	2.6
Total injuries and noninjuries:						
Fatal injury, class A.....	9	0	0	0	0	1.8
Severe injury, class B.....	1	0	0	0	0	.2
Minor injury, class C.....	0	6	0	0	0	1.2
Uninjured, class D.....	6	32	12	9	22	16.2
Total.....	16	38	12	9	22	19.4
II. Damage to material:						
Airplanes:						
Completely demolished, class A.....	4	1	0	0	0	1.0
Complete overhaul, class B.....	3	3	0	2	1	1.8
Major assembly repairs, class C.....	0	4	3	2	1	2.0
Minor repairs, class D.....	0	0	0	0	1	.2
III. Nature of accident:						
Collision in full flight with objects other than aircraft, class B.....	1	0	0	0	0	.2
Spins or stalls (engine failure), class C.....	1	0	0	0	0	.2
Forced landings, class E.....	1	0	0	1	1	.6
Landing accidents, class F.....	4	4	2	2	2	2.8
Take-off accidents, class G.....	0	0	0	1	0	.2
Taxying accidents, class H.....	0	2	1	0	0	.6
Structural failures, class N.....	0	1	0	0	0	.2

TABLE D.—Comparative Figures in Analysis of Causes of Accidents Occurring in Domestic Non-scheduled Air-Carrier Operations For the July-December Periods For the Years 1936 through 1940

[Causes of accidents indicated in percentages]

	July-December 1936	July-December 1937	July-December 1938	July-December 1939	July-December 1940	Average for the 5 periods
Number of accidents involved.....	7	7	3	4	3	4.8
CAUSES						
Personnel:						
Pilots:						
Poor technique.....	36.43	0	33.33	50.00	20.00	25.63
Carelessness or negligence.....	0	14.28	0	0	33.33	8.33
Total pilot errors.....	36.43	14.28	33.33	50.00	53.33	33.96
Total personnel errors.....	36.43	14.28	33.33	50.00	53.33	33.96
Material:						
Power plant:						
Fuel system.....	14.29	0	0	0	33.34	8.33
Engine structure.....	0	0	0	25.00	0	4.17
Undetermined.....	2.85	0	0	0	0	.83
Total power-plant failures.....	17.14	0	0	25.00	33.34	13.33
Structural:						
Flight-control system.....	0	14.28	0	0	0	4.17
Retractable landing-gear mechanism.....	0	28.57	33.34	0	0	12.50
Wheels, tires, and brakes.....	0	14.29	0	0	0	4.17
Tail wheel or tail skid assembly.....	0	0	0	25.00	0	4.16
Total structural failure.....	0	57.14	33.34	25.00	0	25.00
Total airplane failures.....	17.14	57.14	33.34	50.00	33.34	38.33
Miscellaneous:						
Weather.....	25.00	0	0	0	0	7.29
Darkness.....	7.14	0	0	0	13.33	3.75
Airport, terrain, or water.....	14.29	0	0	0	0	4.17
Other.....	0	14.29	33.33	0	0	8.33
Total miscellaneous causes.....	46.43	14.29	33.33	0	13.33	23.54
Undetermined and doubtful.....	0	14.29	0	0	0	4.17

TABLE E.—Comparative Figures in Vital Statistics and Results of Accidents Occurring in Domestic Scheduled Air-Carrier Operations for the July-December Periods for the Years 1936 Through 1940

	July-December 1936	July-December 1937	July-December 1938	July-December 1939	July-December 1940	Average for the 5 periods
Number of accidents involving—						
Fatal injuries	4	2	2	0	3	2.2
Severe injuries	1	1	1	0	0	.6
Minor and no injuries	21	14	15	15	20	17.0
Total accidents	26	17	18	15	23	19.8
I. Injury to personnel:						
Pilots:						
Fatal injury, class A	4	2	0	0	3	1.8
Severe injury, class B	1	0	0	0	0	.2
Minor injury, class C	1	0	4	0	1	1.2
Uninjured, Class D	21	15	14	16	19	17.0
Copilots:						
Fatal injury, class A	4	2	1	0	3	2.0
Severe injury, class B	0	0	0	0	0	.0
Minor injury, class C	2	0	2	0	1	1.0
Uninjured, class D	18	13	15	16	19	16.2
Passengers:						
Fatal injury, class A	19	18	4	0	35	15.2
Severe injury, class B	0	8	4	0	6	3.6
Minor injury, class C	8	1	6	0	2	3.4
Uninjured, class D	117	107	80	121	204	125.8
Aircraft crew:						
Fatal injury, class A	2	1	1	0	4	1.6
Severe injury, class B	0	2	0	0	0	.4
Minor injury, class C	0	0	1	0	1	.4
Uninjured, class D	10	7	6	6	23	10.4
Ground personnel:						
Minor injury, class C	0	0	0	2	0	.4
Total injuries and noninjuries:						
Fatal injury, class A	29	23	6	0	45	20.6
Severe injury, class B	1	10	4	0	6	4.2
Minor injury, class C	11	1	13	2	5	6.4
Uninjured, class D	166	142	115	150	265	169.4
Total	207	176	138	161	321	200.6
II. Damage to material:						
Airplanes:						
Completely demolished, class A	7	2	3	0	3	3.0
Complete overhaul, class B	7	3	4	3	4	4.2
Major assembly repairs, class C	12	11	5	12	5	9.0
Minor repairs, class D	1	1	6	1	12	4.2
III. Nature of accident:						
Collision (see definition), class A	0	0	0	0	0	1.0
Collision (see definition), class B	4	1	1	0	2	.6
Spins or stalls (engine failure), class C	0	0	0	0	0	.0
Spins or stalls (not engine failure), class D	0	0	0	0	0	1.0
Forced landings, class E	2	0	1	1	2	8.2
Landing accidents, class F	9	5	6	7	16	1.6
Take-off accidents, class G	0	2	2	1	0	5.0
Taxiing accidents, class H	10	4	5	4	3	.2
Fires in the air, class I	0	0	1	1	0	1.4
Structural failures, class N	0	4	2	1	0	.4
Miscellaneous, class X	0	1	0	0	0	.2
Indeterminate and doubtful, class Y	1	0	0	0	0	.2
Miscellaneous information:						
Fires after accident	1	0	0	0	0	.2
Propeller accidents to persons	0	0	0	1	0	.2

TABLE F.—Comparative Figures in Analysis of Causes of Accidents Occurring in Domestic Scheduled Air-Carrier Operations For the July-December Periods For the Years 1936 Through 1940

[Causes of accidents indicated in percentages]

	July-December 1936	July-December 1937	July-December 1938	July-December 1939	July-December 1940	Average for the 5 periods
Number of accidents involved	26	17	18	15	23	19.8
CAUSES						
Personnel:						
Pilots:						
Error in judgment	9.23	1.76	10.55	6.67	12.17	8.48
Poor technique	2.69	6.47	1.39	5.00	16.96	6.77
Disobedience of orders or regulations	3.08	0	0	0	0	.81
Carelessness or negligence	17.30	11.77	16.67	17.33	13.04	15.28
Miscellaneous	0	0	5.55	0	0	1.01
Total pilot errors	32.30	20.00	34.16	29.00	42.17	32.32
Other personnel:						
Supervisory	4.23	0	8.89	6.67	2.61	4.34
Miscellaneous	3.85	5.88	0	0	4.35	3.03
Total personnel errors	40.38	25.88	43.05	35.67	49.13	39.69

TABLE F.—Comparative Figures in Analysis of Causes of Accidents Occurring in Domestic Scheduled Air-Carrier Operations for the July-December Periods for the Years 1936 Through 1940—Continued

	July-December 1936	July-December 1937	July-December 1938	July-December 1939	July-December 1940	Average for the 5 periods
Material:						
Power plant:						
Fuel system	0	0	0	0	0	0
Cooling system	0	0	0	0	0	0
Ignition system	0	0	0	0	0	0
Lubrication system	0	0	0	0	0	0
Engine structure	0	0	5.56	0	4.35	2.02
Propeller assembly	3.85	0	5.56	0	0	2.02
Engine-control system	0	0	0	0	0	0
Miscellaneous	0	0	0	0	0	0
Undetermined	0	0	.55	0	1.30	.40
Total power-plant failures	3.85	0	11.67	0	5.65	4.44
Structural:						
Flight-control system	0	0	0	0	0	0
Movable surfaces	0	0	0	0	0	0
Stabilizing surfaces	0	0	0	0	0	0
Wings, struts, and bracings	0	5.88	0	0	0	1.01
Undercarriage	19.23	0	0	6.67	17.39	10.10
Retractable landing-gear mechanism	0	0	11.11	0	4.35	3.03
Wheels, tires, and brakes	3.85	11.77	5.56	0	4.35	5.05
Pontoons or boats	0	0	0	0	0	0
Fuselage, engine mount, and fittings	0	5.88	0	0	0	1.01
Tail-wheel assembly	0	5.88	0	0	0	1.01
Miscellaneous	0	0	0	0	0	0
Undetermined	0	0	0	0	0	0
Total structural failures	23.08	29.41	16.67	6.67	26.09	21.21
Handling qualities	0	0	0	0	0	0
Instruments	0	0	0	0	0	0
Total airplane failures	26.93	29.41	28.34	6.67	31.74	25.65
Miscellaneous:						
Weather	7.69	30.00	11.94	12.33	11.31	13.84
Darkness	0	0	0	0	0	0
Airport, terrain, or water	15.38	2.94	16.67	38.67	5.65	14.75
Other	3.85	11.77	0	6.66	2.17	4.55
Total miscellaneous causes	26.92	44.71	28.61	57.66	19.13	33.14
Undetermined and doubtful	5.77	0	0	0	0	1.52

TABLE H.—Analysis of Causes of Accidents Occurring in Scheduled Air-Carrier Operations, Domestic, International, and Territorial, for the Years 1936-40, Inclusive

[Causes of accidents indicated in percentages]

	1936	1937	1938	1939	1940	Average for the 5 years
Number of accidents involved	70	50	44	39	53	1256
CAUSES						
Personnel:						
Pilots:						
Error of judgment	9.14	4.50	4.89	2.56	7.36	6.13
Poor technique	6.86	4.20	7.39	12.18	16.89	9.32
Disobedience of orders or regulations	1.14	0	0	2.56	0	.70
Carelessness or negligence	12.50	9.50	14.77	15.90	16.70	13.69
Miscellaneous	0	0	2.27	0	0	.39
Total pilot errors	29.64	18.20	29.32	33.20	40.95	30.23
Other personnel:						
Supervisory	5.86	1.70	3.64	5.13	1.13	3.57
Miscellaneous	4.14	2.00	0	0	3.78	2.31
Total personnel errors	39.64	21.90	32.96	38.33	45.86	36.11
Material:						
Power plant:						
Fuel system	3.57	0	2.27	0	4.90	2.38
Cooling system	0	0	0	0	0	0
Ignition system	0	0	0	0	0	0
Lubrication system	0	0	0	0	.47	.10
Engine structure	2.85	0	7.30	3.59	4.72	3.57
Propeller assembly	1.43	2.00	2.27	0	0	1.17
Engine control system	0	0	0	2.56	0	.39
Miscellaneous	0	0	0	0	0	0
Undetermined	1.43	0	.23	2.57	.57	.94
Total power plant failures	9.28	2.00	12.16	8.72	10.66	8.55
Structural:						
Flight control system	0	0	0	0	0	0
Movable surfaces	0	0	1.14	0	0	.20
Stabilizing surfaces	0	0	1.14	0	0	.20
Wings, struts, and bracings	0	2.00	0	0	0	.39
Undercarriage	14.29	2.00	2.27	2.57	7.54	6.64

*5-year total.

TABLE H.—*Analysis of Causes of Accidents Occurring in Scheduled Air-Carrier Operations, Domestic, International, and Territorial, for the years 1936-40, Inclusive—Continued*

	1935	1937	1938	1939	1940	Average for the 5 years
Material—Continued.						
Structural—Continued.						
Retractable landing gear mechanism	0	0	6.82	2.56	1.89	1.95
Wheels, tires, and brakes	4.29	7.60	4.54	2.56	6.42	5.16
Pontoons or boats	0	0	0	2.56	0	.39
Fuselage, engine mount, and fittings	0	2.00	0	0	0	.39
Tail wheel assembly	4.29	4.00	2.27	0	0	2.34
Miscellaneous	0	2.00	0	0	0	.39
Undetermined	0	0	0	0	0	0
Total structural failures	22.87	19.60	18.18	10.25	15.85	18.05
Handling qualities	1.43	0	0	0	0	.30
Instruments	0	0	0	0	0	0
Total airplane failures	33.58	21.60	30.34	18.97	26.51	26.90
Miscellaneous:						
Weather	8.21	25.40	13.97	7.31	11.98	13.20
Darkness	0	0	0	0	.75	.16
Airport, terrain, or water	12.14	15.50	13.64	25.13	12.07	15.02
Other	4.29	8.60	4.55	10.26	2.83	5.78
Total miscellaneous causes	24.64	49.50	32.16	42.70	27.63	34.16
Undetermined and doubtful	2.14	7.00	4.54	0	0	2.74

TABLE G.—*Analysis of Causes of Accidents Occurring in Scheduled Air-Carrier Operations for the Periods January-June and July-December 1940, in Domestic, International, and Territorial Operations*

[Causes of accidents indicated in percentages]

[For comparison with previous periods see Civil Aeronautics Bulletin No. 8, AIRCRAFT ACCIDENTS AND CASUALTIES, AIR COMMERCE BULLETIN, Vol. 10, No. 11, dated May 15, 1939, and CIVIL AERONAUTICS JOURNAL, Vol. 1, No. 10, dated May 15, 1940.]

	1940								
	January-June			July-December			Total		
	Domestic services	International and territorial services	Total	Domestic services	International and territorial services	Total	Domestic services	International and territorial services	Total
Number of accidents involved	19	2	21	23	9	32	42	11	53
CAUSES									
Personnel:									
Pilots:									
Error of judgment	2.38	0	2.38	8.75	1.88	10.63	6.23	1.13	7.36
Poor technique	17.38	0	17.38	12.19	4.37	16.66	14.25	2.64	16.89
Disobedience of orders or regulations	0	0	0	0	0	0	0	0	0
Carelessness or negligence	27.86	0	27.86	9.37	0	9.37	16.70	0	16.70
Miscellaneous	0	0	0	0	0	0	0	0	0
Total pilot errors	47.62	0	47.62	30.31	6.25	36.56	37.18	3.77	40.95
Other personnel:									
Supervisory	0	0	0	1.87	0	1.87	1.13	0	1.13
Miscellaneous	4.76	0	4.76	3.13	0	3.13	3.78	0	3.78
Total personnel errors	52.38	0	52.38	35.31	6.25	41.56	42.09	3.77	45.86
Material:									
Power plant:									
Fuel system	2.86	4.76	7.62	0	3.13	3.13	1.13	3.77	4.90
Cooling system	0	0	0	0	0	0	0	0	0
Ignition system	0	0	0	0	0	0	0	0	0
Lubrication system	1.19	0	1.19	0	0	0	.47	0	.47
Engine structure	2.38	0	2.38	3.13	3.12	6.25	2.83	1.80	4.72
Propeller assembly	0	0	0	0	0	0	0	0	0
Engine-control system	0	0	0	0	0	0	0	0	0
Miscellaneous	0	0	0	0	0	0	0	0	0
Undetermined	0	0	0	.94	0	.94	.57	0	.57
Total power-plant failures	6.43	4.76	11.19	4.07	6.25	10.32	5.00	5.66	10.66
Structural:									
Flight-control system	0	0	0	0	0	0	0	0	0
Movable surfaces	0	0	0	0	0	0	0	0	0
Stabilizing surfaces	0	0	0	0	0	0	0	0	0
Wings, struts, and bracing	0	0	0	0	0	0	0	0	0
Undercarriage	0	0	0	12.50	0	12.50	7.54	0	7.54
Retractable landing-gear mechanism	0	0	0	3.13	0	3.13	1.89	0	1.89
Wheels, tires, and brakes	6.67	0	6.67	3.12	3.13	6.25	4.53	1.89	6.42
Pontoons or boats	0	0	0	0	0	0	0	0	0
Fuselage, engine mount, and fittings	0	0	0	0	0	0	0	0	0
Tail-wheel assembly	0	0	0	0	0	0	0	0	0
Miscellaneous	0	0	0	0	0	0	0	0	0
Undetermined	0	0	0	0	0	0	0	0	0
Total structural failures	6.67	0	6.67	18.75	3.13	21.88	13.96	1.89	15.85

TABLE G.—Analysis of Causes of Accidents Occurring in Scheduled Air-Carrier Operations for the Periods January-June and July-December 1940, in Domestic, International, and Territorial Operations—Continued

	1940								
	January-June			July-December			Total		
	Domestic services	International and territorial services	Total	Domestic services	International and territorial services	Total	Domestic services	International and territorial services	Total
Material—Continued									
Handling qualities	0	0	0	0	0	0	0	0	0
Instruments	0	0	0	0	0	0	0	0	0
Total airplane failures	13.10	4.76	17.86	22.82	9.38	32.20	18.96	7.55	26.51
Miscellaneous:									
Weather	11.19	0	11.19	8.12	4.38	12.50	9.34	2.64	11.98
Darkness	1.90	0	1.90	0	0	0	.75	0	.75
Airport, terrain, or water	7.14	4.76	11.90	4.06	8.12	12.18	5.28	6.79	12.07
Other	4.77	0	4.77	1.56	0	1.56	2.83	0	2.83
Total miscellaneous causes	25.00	4.76	29.76	13.74	12.50	26.24	18.20	9.43	27.63
Undetermined and doubtful	0	0	0	0	0	0	0	0	0
Total percentages	90.48	9.52	100.00	71.87	28.13	100.00	79.25	20.75	100.00

TABLE I.—Vital Statistics and Results of Accidents Occurring in All Scheduled Air-Carrier Operations (Domestic, International and Territorial) for Years 1936-1940, Inclusive

	1936	1937	1938	1939	1940	Average for the 5 years
Number of accidents involving:						
Fatal injuries	10	6	8	3	3	6.0
Severe injuries	5	2	1	1	2	2.2
Minor and no injuries	55	42	35	35	48	43.0
Total accidents	70	50	44	39	53	51.2
I. Injury to personnel:						
Pilots:						
Fatal injury, class A	9	5	6	2	3	5.0
Severe injury, class B	4	1	0	1	2	1.6
Minor injury, class C	3	0	5	0	1	1.8
Uninjured, class D	55	41	33	38	48	43.6
Copilots:						
Fatal injury, class A	7	6	7	2	3	5.0
Severe injury, class B	1	0	0	1	1	.6
Minor injury, class C	4	0	3	0	2	1.8
Uninjured, class D	41	30	32	36	47	39.6
Passengers:						
Fatal injury, class A	46	51	32	19	35	36.6
Severe injury, class B	5	15	4	4	6	6.8
Minor injury, class C	56	2	14	5	7	16.8
Uninjured, class D	307	301	238	274	445	313.0
Aircraft crew:						
Fatal injury, class A	5	4	16	3	4	6.4
Severe injury, class B	2	3	0	0	1	1.2
Minor injury, class C	8	0	1	2	3	2.8
Uninjured, class D	31	42	27	39	66	41.0
Ground personnel:						
Minor injury, class C	1	0	0	2	0	.6
Third parties:						
Minor injury, class C	0	0	14	0	0	2.8
Total injuries and noninjuries:						
Fatal injury, class A	67	66	61	26	45	53.0
Severe injury, class B	12	19	4	6	10	10.2
Minor injury, class C	72	2	37	9	13	26.6
Uninjured, class D	437	426	330	387	606	437.2
Total...	588	513	432	428	674	527.0
II. Damage to Material:						
Airplanes:						
Completely demolished, class A	16	9	11	3	4	8.6
Complete overhaul, class B	23	13	7	10	10	12.6
Major assembly repairs, class C	31	27	17	23	21	23.8
Minor repairs, class D	1	1	9	5	22	7.6
No damage, class E	0	0	0	1	0	.2
III. Nature of accident:						
Collision (see definition), class A	0	0	0	0	0	0
Collision (see definition), class B	7	5	3	1	5	4.2
Spins or stalls (engine failure), class C	0	0	0	0	0	0
Spins or stalls (not engine failure), class D	0	1	0	0	0	.2
Forced landings, class E	5	4	4	3	3	3.8
Landing accidents, class F	27	18	12	17	30	20.8
Take-off accidents, class G	9	5	5	2	4	5.0
Taxying accidents, class H	18	12	8	9	9	11.2
Fires in the air, class I	1	0	3	2	0	1.2
Structural failures, class N	1	4	5	1	0	2.2
Miscellaneous, class X	0	1	2	3	2	1.6
Indeterminate and doubtful, class Y	2	0	2	1	0	1.0
Miscellaneous information:						
Fires after accident	4	1	1	2	0	1.6
Propeller accidents to persons	0	1	0	1	1	.6

Air Transportation

Board Issues Decision On Continental Mail Pay

The Civil Aeronautics Board has made public its decision concerning mail pay rates for Continental Air Lines, Inc.'s, routes 29 and 43. On route 29 the rates heretofore fixed by the Interstate Commerce Commission were judged fair and reasonable for the period from December 1, 1939, the date the Board instituted the investigation from which the latest decision results, to and including September 30, 1940, and no change was made. Likewise the rates for route 43, which were fixed by the Board effective June 23, 1939, the date of inauguration of service on that route, were judged fair and reasonable to and including September 30, 1940.

For routes 29 and 43, on and after October 1, 1940, a new base rate of 38 cents per airplane mile for the first 300 pounds of mail, or fraction thereof, plus 2.5 percent of such rate for each additional 25 pounds of mail, or fraction thereof, was fixed.

Attached to the opinion is a note presenting two new methods of air-mail rate making which have been proposed to the Board. The Board stated that the proposed methods do not necessarily represent in any way its views but are set forth for the purpose of provoking critical comment. (Copies of the Board's decision, which also includes the two mail pay formulas, may be obtained from the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C. Please refer to Order Serial No. 1045, Docket No. 332.)

Penn-Central Awarded Muskegon, Mich., Stop

The Civil Aeronautics Board has amended the certificate of Pennsylvania-Central Airline's route No. 32 to authorize direct service between Muskegon, Mich., and Chicago, Ill. The amendment allows Pennsylvania-Central to serve Muskegon as an intermediate stop on flights operated between Chicago and Grand Rapids, Mich., and points beyond without any reduction in service to Grand Rapids.

Bermuda Air Mail

Effective June 4, air mail service on F. A. M. route 17, that has for some time been performed between Baltimore and Bermuda, was changed to operate

between New York and Bermuda, leaving New York Wednesday and Friday at 10:30 a. m., according to the Post Office Department. There is additional air-mail service to Bermuda on the transatlantic route, leaving New York Tuesday, Thursday, and Saturday at 9:30 a. m.

Airports

(Continued from page 142)

State and Location	Present Class	Proposed Class	
CALIFORNIA			
Prescott	0	3	
Safford	0	3	
Willcox	1	3	
Bishop	2	3	
Daggett	2	3	
El Centro-Imperial	0	3	
Eureka	0	3	
Livermore	1	3	
Lone Pine	1	3	
Madera	1	3	
Merced	2	3	
Modesto	2	3	
Mojave	1	3	
Needles	2	3	
Palmdale	1	3	
Porterville	0	3	
Sacramento	2	3	
San Bernardino	0	3	
Santa Rosa	2	3	
Santa Cruz	0	3	
Silver Lake	0	3	
Ukiah	1	3	
NEVADA			
Ely	2	3	
UTAH			
Cedar City	1	3	
Logan	1	4	
Ogden	3	4	
Provo	0	3	
Region IV			
ARKANSAS			
El Dorado	0	3	
Helena	1	3	
Texarkana	2	3	
LOUISIANA			
Alexandria	0	3	
Crowley-Jennings	0	3	
Hammond	1	3	
Houma	1	3	
Lafayette	2	4	
Monroe	1	3	
Natchitoches	2	3	
New Orleans (Jefferson Parish)	0	4	
NEW MEXICO			
Clovis	2	3	
Hobbs	1	3	
Las Vegas	3	4	
Santa Fe	3	4	
Socorro	2	3	
Tucumcari	2	3	
OKLAHOMA			
Ada	0	3	
Chickasha	1	3	
Enid	1	3	
TEXAS			
Arlington	0	3	
Beaumont	2	3	
Georgetown	0	3	
Greenville	0	3	
Kerrville	0	3	
Kingsville	1	3	
Longview	0	3	
Mathis	1	2	
Mineral Wells	0	3	
Palestine	1	3	
Sherman-Denison	0	3	
Temple	1	3	
Tyler	2	3	
Vernon	0	3	
Region V			
COLORADO			
Grand Junction	2	3	
KANSAS			
Dodge City	1	3	
Topeka	2	3	
Winfield-Arkansas City	0	3	
MISSOURI			
Joplin	2	3	
Springfield	0	3	
WYOMING			
Rock Springs	3	4	
Region VI			
ARIZONA			
Douglas	0	3	
Gila Bend	0	3	

Statistical Summary

Sharply expanded air express shipments, resulting largely from national defense business, caused a 47.87-percent increase in air express pound-miles flown by the nation's 16 domestic scheduled air lines in April, compared with April last year, according to statistics compiled by the Civil Aeronautics Administration.

The April total for this category was 726,191,800 pound-miles. For March of this year the total was 674,619,089 pound-miles flown, an increase of 28.40 percent over March 1940.

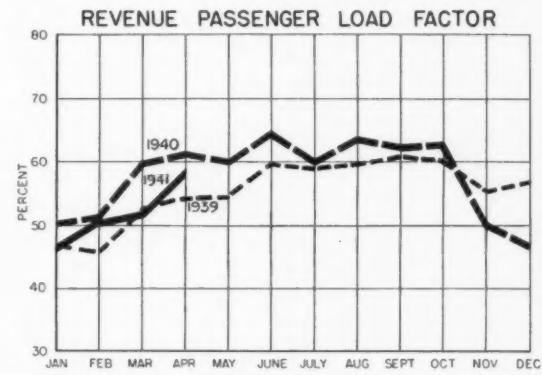
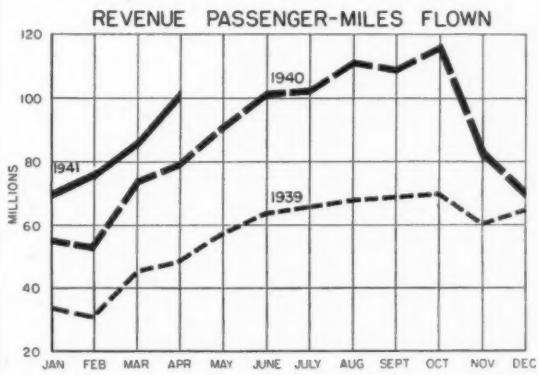
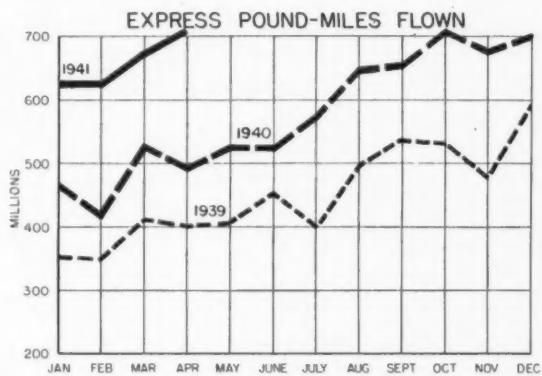
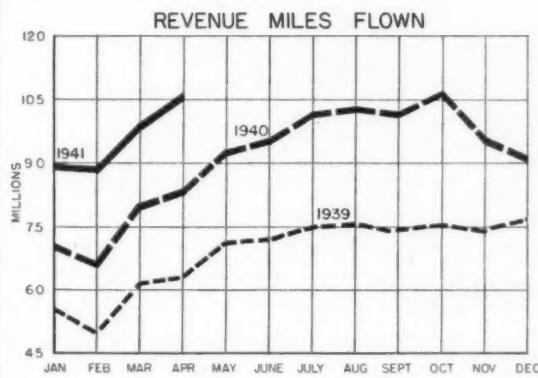
The April gain, as shown by the chart on the opposite page, is a reversal of the seasonal trend for the month. In both April 1940 and April 1939 there was a decrease from the previous month.

The reporting carriers flew 10,536,916 revenue miles during April, a gain of 26.47 percent over the like 1940 month.

Revenue passengers carried in April totaled 282,522 and revenue-passenger miles flown aggregated 103,511,993, representing increases of 36.88 and 29.75 percent, respectively, over April 1940.

The April revenue-passenger load factor was 56.59 percent, compared with 61.37 percent in April 1940.

Domestic Air-Carrier Traffic Statistics for 1939, 1940, and the First 4 Months of 1941



Domestic Air-Carrier Traffic Statistics for April 1941

Operator	Revenue miles flown		Revenue passengers carried		Revenue passenger miles flown		Express pound-miles flown		Revenue passenger load factor (percent)	
	April 1941	Percent change over 1940	April 1941	Percent change over 1940	April 1941	Percent change over 1940	April 1941	Percent change over 1940	April 1941	April 1940
American Airlines, Inc.	2,539,013	25.77	93,732	44.48	31,600,038	32.67	192,432,872	56.80	68.49	68.35
Braniff Airways, Inc.	430,838	9.75	11,028	14.73	3,375,947	5.64	14,429,811	13.57	45.07	57.33
Catalina Air Transport, Inc.	8,880	2.78	1,594	4.59	47,820	4.59	413,970	43.87	52.85	51.73
Chicago & Southern Air Lines, Inc.	187,509	16.45	4,501	76.37	1,769,875	71.25	8,209,984	61.17	48.25	77.89
Continental Air Lines, Inc.	119,411	24.23	1,458	36.77	451,438	39.60	630,309	58.50	36.69	51.28
Delta Air Corporation	214,265	38.33	4,486	6.58	1,267,494	18.25	2,345,619	30.41	32.78	61.44
Eastern Air Lines, Inc.	1,685,902	40.73	41,798	33.81	17,790,269	31.22	98,341,570	44.52	53.23	63.65
Inland Air Lines, Inc.	84,097	4.90	729	-1.88	191,924	-2.70	286,276	20.65	22.82	24.60
Mid-Continent Airlines, Inc.	177,198	44.95	2,486	32.80	657,424	36.44	1,451,870	-1.66	34.55	39.42
National Airlines, Inc.	138,337	66.71	3,088	83.92	750,500	88.13	1,738,135	168.45	41.09	48.08
Northeast Airlines, Inc.	104,315	108.85	2,756	101.61	437,666	106.39	507,068	82.18	41.96	42.05
Northwest Airlines, Inc.	490,320	10.95	10,832	16.36	4,270,213	21.24	26,308,383	30.28	43.36	40.44
Pennsylvania-Central Airlines Corporation	542,866	72.39	26,209	62.34	4,981,757	73.63	19,416,902	104.31	48.04	59.32
Transcontinental & Western Air, Inc.	1,647,655	29.08	34,736	45.03	15,990,482	36.94	125,089,130	65.05	55.45	55.53
United Air Lines Transport Corporation	1,931,187	11.53	38,299	17.58	18,251,585	13.32	213,824,485	33.83	63.78	66.98
Western Air Express Corporation	235,063	25.78	4,790	34.66	1,587,461	35.71	20,765,326	70.79	44.36	50.71
Total	10,536,916	26.47	282,522	36.88	103,511,893	29.75	726,191,800	47.87	56.59	61.37

Manufacturing and Production

OPM Allots Aluminum for Manufacture of C. P. T. Planes

Action designed to facilitate the production of light airplanes for the Civilian Pilot Training Program, by making a restricted quantity of aluminum available to the manufacturers involved, has been announced by E. R. Stettinius, Jr., Director of Priorities, Office of Production Management.

Mr. Stettinius said that the Priorities Division will allocate 58,000 pounds of aluminum to the light-plane manufacturers for June and an equal amount for July. While this is enough to provide only for restricted production, it will make possible the construction of enough planes to fulfill the essential needs of the program. Details of the plan have been worked out by the Priorities Division and representatives of the Civil Aeronautics Administration.

Eleven manufacturers will share in the allotment of the aluminum for June.

Specific allotments of aluminum have been arranged for in accordance with recommendations made to the Priorities Division by the Civil Aeronautics Administration. Manufacturers covered by the order may apply for an A-10 rating which will permit them to get the amount of aluminum designated from their suppliers. Each manufacturer will place his own orders with aluminum suppliers but these orders will be subject to check by the Priorities Division, in order to make sure that the allotments are not being exceeded.

The action announced today was decided on because of the importance of the Civilian Pilot Training Program in the training of potential Army and Navy fliers.

April Aero Employment Up 10,300 Over March

The aircraft industry in April employed 166,100 workers, an increase of 10,300 from March, according to estimates of the Department of Labor.

The increase in aircraft employment brought the April index to 5931.4 percent of the 1923-25 average, compared with 5563.7 percent in March and 2474.3 percent in April 1940. The pay-roll index for April was 7243.2 percent of the 1923-25 average against 6678.3 percent in March and 2415.0 percent in April last year.

New Type Approvals

(Approval numbers and dates of assignment in parenthesis)

Type Certificates

Aircraft

Vega, 35-70, 2-place open-land monoplane. Engine, Menasco Pirate D4. (741, May 1, 1941.)

Stearman, A75L3, 2-place open-land biplane. Engine, Lycoming R680B-1D. (743, May 12, 1941.)

New Models Added to Old Type Approvals

(Approval numbers and dates of approval of new models in parenthesis)

Aircraft

Boeing, A-314, 80-place closed flying-boat monoplane. Engines, 4 Wright Double-Row Cyclones GR-2600-A2A. (Approved type certificate No. 704, May 2, 1941.)

Kellett, KD-1A, 2-place open land autogiro. Engine, Jacobs L-4-MAT. (Type certificate No. 712, April 4, 1941.)

Taylorcraft, BF12-65 (2-place closed land monoplane) and BFS12-65 (2-place closed sea monoplane). Engine, Franklin 4AC-176-B2. (Type certificate No. 690, May 1, 1941.)

Fairchild, M-62B, 2-place open land monoplane. Engine, Warner Super Scarab 165 (Suffix "E"). (Type certificate No. 724, May 14, 1941.)

Engines

Aircooled, Franklin GAC-264-F3, 6 cylinder horizontal opposed air cooled, 117 horsepower at 2,600 revolutions per minute at sea-level pressure altitude. Incorporates special accessories—generator, starter, and fuel pump. (Type certificate No. 222, May 2, 1941.)

Aviation Mfg., Lycoming O-235, 4-cylinder horizontal opposed air cooled, 100 horsepower at 2,550 revolutions per minute at sea-level pressure altitude. (Type certificate No. 223, May 15, 1941.)

Propellers

Sensenich, 98C, wood, 8 feet 2 inches diameter, 5 feet 8 inches to 5 feet 4 inches pitch, 225 horsepower 2100 revolutions per minute. (Approved type certificate No. 586, May 5, 1941.)

Pilot, 87M, wood, 7 feet 3 inches diameter, 5 feet 1 inch to 3 feet 11 inches pitch, 160 horsepower, 2,300 revolutions per minute. (Type certificate No. 761, May 7, 1941.)

Sensenich, 70A, wood, 5 feet 10 inches diameter, 4 feet 8 inches to 4 feet 4 inches pitch, 75 horsepower, 2,600 revolutions per minute. (Type certificate No. 734, May 15, 1941.)

Appliances

American Airlines safety belt, models BDS-719 (Auxiliary—approved for one person) and DDS-1462 (approved for one person). (Type certificate No. 107, May 8, 1941.)

Braniff, safety belt, model 4103. Approved for one person. (Type certificate No. 124, May 9, 1941.)

Air Associates, low-pressure wheels, model 3008, 7.00-5, aluminum-alloy cast. Approved static load per wheel 1,400 pounds with General Tire & Rubber Co.'s 6-inch tube-expander brake. (Type certificate No. 91, May 15, 1941.)

Goodyear, low-pressure wheels, model HD16HBM, 15.00-16, magnesium cast. Approved static load per wheel 12,900 pounds. (Type certificate No. 37, May 15, 1941.)

C. P. T. P.

(Continued from page 141)

duty in the Army, 33 on active duty in the Navy, and 256 have gone to commercial airlines as replacement personnel.

"The figures indicate that C. A. A. fliers have been going into active defense work at the rate of almost 200 a week since the first of March," General Connolly stated. "At that time we had a total of 4,813 graduates who had volunteered and been accepted. Subtract that from today's total of 7,399 and you have a total of 2,586 who have entered the services during March, April, and May."

Airways and Airports

Aeronautical Charts

During May the following new editions of aeronautical charts were issued by the United States Coast and Geodetic Survey. Pilots are warned that the previous editions of the same charts are canceled and now are obsolete.

Regional and direction-finding (DF) charts are sold for 40 cents each, while sectional charts are 25 cents each. On orders grossing \$10 or more, a 33 1/3 percent discount is allowed. Copies of these charts may be obtained from the Coast and Geodetic Survey, Washington, D. C., and from recognized dealers at major cities and airports.

New Edition of Direction Finding Aeronautical Chart

26-DF. April 1941. Size, 29 by 32 inches. Located in latitude 23°-39° N., longitude 75°-91° W., an area of about 950,000 square miles. Accumulation of changes since last edition.

New Editions of Sectional Aeronautical Charts

BEAUMONT. May 1941. Size, 20 by 47 inches. Located in latitude 30°-32° N., longitude 90°-96° W., an area of about 57,000 square miles. Navasota radio range realigned and an accumulation of changes since the last edition.

BOSTON. May 1941. Size, 22 by 28 inches. Located in latitude 41°-44° N., longitude 69°-72° W., an area of about 20,000 square miles. Addition of Providence radio range and accumulation of other changes.

BURLINGTON. May 1941. Size, 19 by 39 inches. Located in latitude 44°-46° N., longitude 72°-78° W., an area of about 47,000 square miles. Addition of Sterling radio range and the Montreal radio range realigned.

DENVER. May 1941. Size, 20 by 43 inches. Located in latitude 38°-40° N., longitude 102°-108° W., an area of about 51,000 square miles. Addition of a Junta radio range and the realignment of the Pueblo radio range.

DES MOINES. May 1941. Size, 20 by 41 inches. Located in latitude 40°-42° N., longitude 90°-98° W., an area of about 51,000

(See AERO CHARTS, page 155)

CIVIL AERONAUTICS BOARD

OFFICIAL ACTIONS

Abstracts of Opinions, Orders, and Regulations

FOR THE PERIOD MAY 15-31, 1941

ORDERS

ORDER No. 1047: Student-pilot certificate of Alexander Gibson revoked.

The Board on May 16 revoked student-pilot certificate No. S-28410, held by Alexander R. Gibson, Unionville, Mo., for piloting an aircraft on a cross-country flight although he had not been certified as competent to make such flight, and other violations of the Civil Air Regulations.

ORDER No. 1048: Student-pilot certificate of George Pierce revoked.

The Board on May 16 revoked student-pilot certificate No. S-12415, held by George W. Pierce, Anoka, Minn., for piloting an aircraft acrobatically over a congested area at altitudes between 800 and 1,000 feet, and other violations of the Civil Air Regulations.

ORDER No. 1049: Private-pilot certificate of John Kendrick revoked.

The Board on May 16 revoked private pilot certificate No. 65411-41, held by John T. Kendrick, Ardmore, Okla., for piloting an aircraft carrying a passenger who occupied a control seat when the dual controls had not been made inoperative and when neither he nor the passenger held a pilot certificate valid for the operation, and other violations of the Civil Air Regulations.

ORDER No. 1050: Pan American granted permission to intervene in application of New York & Bermudian Airline.

The Board on May 16 granted Pan American Airways Co. permission to intervene in the application of New York & Bermudian Airline for a certificate of public convenience and necessity.

ORDER No. 1051: Amended certificate of Pennsylvania-Central.

The Board of May 17 granted application of Pennsylvania-Central Airlines Corporation for an amendment of its certificate of public convenience and necessity for route No. 32 to add "and between the intermediate point Muskegon, Mich., and the terminal point Chicago, Ill." subject to certain terms and conditions to be effective from the 17th day of May 1941. (Opinion and order—Docket 565.)

ORDER No. 1052: Eastern denied permission to inaugurate nonstop service on Route No. 10.

The Board on May 16 denied Eastern Air Lines, Inc., permission to inaugurate nonstop service between Chicago, Ill., and Nashville, Tenn., on route No. 10.

ORDER No. 1053: National Airlines granted permission to intervene in the application of Eastern.

The Board on May 20 granted National Airlines, Inc., permission to intervene in the application of Eastern Air Lines, Inc., for an amendment to

C. A. B. OPINIONS

Four additional printed opinions of the Civil Aeronautics Board in economic cases have been issued since the last notice which appeared in the June 1 CIVIL AERONAUTICS JOURNAL. This brings the total of individual printed opinions thus far available to 16.

The latest ones printed are No. 13—UNITED AIR LINES TRANSPORT CORPORATION—MAIL RATE PROCEEDING, DOCKET NO. 16-406 (A)-1; NO. 14—BRANIFF AIRWAYS, INC.—HOUSTON-CORPUS CHRISTI-SAN ANTONIO OPERATION, Docket No. 317; NO. 15—PENNSYLVANIA-CENTRAL AIRLINES CORPORATION—NORFOLK-KNOXVILLE ROUTE, Docket No. 245; and NO. 16—TRANSCONTINENTAL & WESTERN AIR, INC.—MAIL RATE PROCEEDING, Docket No. 154. Those opinions printed may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents each.

its certificate of public convenience and necessity to add Ocala, Fla., as an intermediate point and Orlando, Fla., as a terminal point through an extension of route No. 40.

ORDER No. 1054: Consolidated applications for public hearing.

The Board on May 20 consolidated applications of Mid-Continent Airlines, Inc., requesting stops on route No. 26 and that part of the application of Transcontinental & Western Air, Inc., requesting stops on route No. 2 into one proceeding.

ORDER No. 1055: Consolidated applications for public hearing.

The Board on May 20 consolidated into one proceeding the application of American Airlines, Inc., requesting stops on routes Nos. 4 and 23, the application of Braniff Airways, Inc., to extend route No. 15 and the application of Chicago & Southern Air Lines, Inc., requesting a stop on route No. 53.

ORDER No. 1056: Re suspension of private pilot certificate of Clyde Russell Primo.

The Board on May 20 amended its order Serial No. 1032 to read "private-pilot certificate No. 65889, held by Clyde Russell Primo, be, and the same is, suspended for a period of 60 days. Said period of suspension shall commence to run from March 8, 1941, and shall continue until a period of suspension of 60 days shall have elapsed."

ORDER No. 1057: Amended Order Serial No. 979, as amended, regarding applications of United, TWA, Eastern and American.

The Board on May 22 amended Order Serial No. 979, as amended, regarding applications of United Air Lines Transport Corporation, Transcontinental & Western Air, Inc., Eastern Air Lines, Inc., and American Airlines, Inc., by striking out the last sentence and inserting in lieu thereof "this order and the exemption granted thereby may be amended, rescinded, or revoked at any time at the discretion of the Board without notice, and in any event shall cease to be effective as of 12 o'clock p.m., May 31, 1941."

ORDER No. 1058: Suspended private pilot certificates held by Raymond Plozay.

The Board on May 23 suspended private-pilot certificate No. 38183, held by Raymond J. Plozay, Coronado, Calif., for a period of 90 days, for piloting an aircraft with a passenger aboard at an altitude of less than 1,000 feet, in violation of the Civil Air Regulations.

ORDER No. 1059: Tri-State Aviation directed to show cause.

The Board on May 23 directed Tri-State Aviation Corporation to show cause why its certificate of public convenience and necessity shall cease to be effective with respect to service authorized by Orders 753 and 608.

ORDER No. 1060: Re application of Pan-American-Grace for an amendment to its certificate of convenience and necessity.

The Board on May 23 temporarily exempted Pan American-Grace Airways, Inc., from the provisions of section 401 (a) of the Civil Aeronautics Act of 1938 so as to authorize the transportation by air of persons, property, and mail to and from Cochabamba, Sucre, Vallegrande, Santa Cruz, Concepcion, San Ignacio, San Jose, Robore, Puerto Suarez, Bolivia, and Corumba, Brazil.

ORDER No. 1061: Sidney Wright directed to show cause.

The Board on May 27 directed Sidney Wright, Spokane, Wash., to appear before an examiner of the Board and show cause why his student-pilot certificate No. S-258830 should not be suspended or revoked for piloting an aircraft outside an area in the vicinity of the operating base of his instructor, and other violations of the Civil Air Regulations.

ORDER No. 1062: Northeast granted permission to intervene in applications of United and TWA.

The Board on May 27 granted Northeast Airlines, Inc., permission to intervene in the applications of United Air Lines Transport Corporation and Transcontinental & Western Air, Inc., for certificates of public convenience and necessity authorizing air transportation between Boston and Cleveland, and Boston and Pittsburgh, via certain intermediate points.

ORDER No. 1063: Denied petition of Western Air to intervene in applications of United and TWA.

The Board on May 27 denied the petition of Western Air Express Corporation for leave to intervene in the applications of United Air Lines Transport Corporation and Transcontinental & Western Air, Inc., for certificates of convenience and necessity authorizing air transportation between Boston and Cleveland, and Boston and Pittsburgh, via certain intermediate points.

ORDER No. 1064: Suspended private-pilot certificate held by Jac Watson.

The Board on May 29 suspended private-pilot certificate No. 48638-40 held by Jack Bradley Watson, Las Vegas, N. Mex., for a period of 90 days, for piloting an aircraft of a weight and engine classification other than the one for which he was certificated, and other violations of the Civil Air Regulations.

ORDER No. 1065: Consolidated applications of National, Pan American and Eastern.

The Board on May 29 consolidated the applications of National Airlines,

Inc., Pan American Airways, Inc., and Eastern Air Lines, Inc., for certificates and amendment of certificate of public convenience and necessary for the purpose of hearing.

ORDER No. 1066: Foreign air carrier permit issued to Compania Mexicana de Aviacion, S. A.

The Board on May 29 granted the application of Compania Mexicana de Aviacion, S. A., for a foreign air carrier permit authorizing the transportation of persons, property, and mail between Los Angeles, Calif., and Mexico City, D. F. (Opinion and order—Docket 30-402-(C)-1.)

ORDER No. 1067. Dayton Walter Johnson directed to show cause.

The Board on May 29 directed Dayton Walter Johnson, Aynor, S. C., to appear before an examiner of the Board and show cause why his student-pilot certificate No. S-187568 should not be suspended or revoked for piloting an aircraft carrying a passenger other than a certificated instructor, and other violations of the Civil Air Regulations.

ORDER No. 1068: American granted permission to inaugurate nonstop service on routes Nos. 21 and 23.

The Board on May 29 granted American Airlines, Inc., permission to inaugurate on June 1, 1941, nonstop service between Albany and Buffalo, N. Y., on route No. 21, and between Baltimore, Md., and New York, N. Y., on route No. 23.

ORDER No. 1069: Re rates of compensation for the transportation of mail by Pan American Airways

The Board on May 29 amended Order Serial No. 707 instituting proceeding fixing and determining fair and reasonable rates of compensation for the transportation of mail by Pan American Airways Company (Nev.) so as to include the extension of the route from Manila, Philippine Islands, to Singapore, the Straits Settlements.

ORDER No. 1070: Northwest permitted to inaugurate nonstop service.

The Board on May 29 permitted Northwest Airlines, Inc., to inaugurate on June 1, 1941, nonstop service between Chicago, Ill., and Madison, Wis., on route No. 3.

ORDER No. 1071: Lee Scott Gardner directed to show cause.

The Board on May 29 dismissed Order Serial No. 690 directing Lee Scott Gardner, Aniak, Alaska to show cause why his solo pilot certificate No. 93853 should not be suspended or revoked.

REGULATIONS

REGULATION No. 158: The Board on May 16 adopted Amendment No. 109 of the Civil Air Regulations, PROVISION FOR ISSUANCE OF FACTORY MECHANIC RATING. The full text of the amendment, which makes changes in Part 24 of the CAR, follows:

Effective May 16, 1941, Part 24 of the Civil Air Regulations, as amended, is amended by:

(1) Adding to section 24.2 a fourth subsection to read as follows:

"(d) Factory mechanic rating."

(2) By adding a new section following 24.222 to read as follows:

"^{24.28} (e) Factory mechanic rating.—To be eligible for a factory mechanic rating, applicant must be employed by and designated by manufacturer holding a currently effective production certificate, as in direct charge of the inspection, maintenance, overhaul, or repair of aircraft, aircraft engines, propellers, or instruments constructed by such manufacturer. The experience and employment record of the applicant must indicate that he is competent to engage in such activity."

(3) By striking the period at the end of the last sentence in section 24.32 and adding there to the following:

"^{24.32}, or (3) in the case of a factory mechanic rating, at any time the holder ceases to be employed by the manufacturer to whose products the rating is limited or whenever the facilities of such manufacturer are no longer available to or in use by the holder."

(4) By adding to section 24.33 a fourth subsection to read as follows:

"(d) Factory mechanic rating.—Applicant shall have at the time of endorsement is sought, be fully qualified for the original issuance of a factory mechanic rating."

(5) By adding at the end of Part 24 a new section to read as follows:

"^{24.53} (f) Factory mechanic rating limitations.—The holder of a factory mechanic rating shall be limited to the inspection, maintenance, overhaul, or repair of aircraft, aircraft engines, propellers, or instruments constructed by the manufacturer employing the holder. Such work shall be performed only for such manufacturer and through the use of facilities provided by him."

REGULATION No. 159: Since this regulation is purely local, concerning operations of aircraft at the Indianapolis Speedway on Memorial Day, it is not reprinted here.

REGULATION No. 160: The Board on May 23 adopted Amendment No. 110 of the Civil Air Regulations, DUAL CONTROL AIRPLANES. The full text of the amendment follows:

Effective May 27, 1941, the Civil Air Regulations are amended as follows:

1. By amending section 20.211 to read as follows:

"^{20.211} Aeronautical experience.—Applicant shall be possessed of a valid private, limited-commercial, or commercial pilot certificate, and shall have logged at least 200 hours of solo flight time as prescribed in section 20.146, including at least 20 hours of instrument instruction and practice under actual or simulated flight conditions approved by the Administrator. *Provided*, That not less than 10 hours of such 20-hour requirement shall be in actual flight."

2. By adding after section 20.652 a new subsection to read as follows:

"^{20.653} Instrument instruction.—Instrument instruction in flight shall not be deemed flying instruction within the meaning of section 20.65, but no person shall give instrument instruction in flight unless possessed of a valid instrument rating."

REGULATION No. 161: The Board on May 27 adopted Amendment No. 111 of the Civil Air Regulations, INSTRUMENT INSTRUCTION. The full text of the amendment follows:

Effective May 23, 1941, section 20.616 of the Civil Air Regulations is amended to read as follows:

"**20.616 Dual control airplanes.**—Airplanes equipped with fully or partially functioning dual controls shall not be operated with both control seats occupied unless one of such control seats is occupied (a) by a person possessed of at least a valid commercial pilot certificate, or (b) by a person possessed of at least a valid private pilot certificate and a valid instructor rating, or (c) by a person possessed of at least a valid private pilot certificate and whose Airman Rating Record has been endorsed by a duly authorized representative of the Administrator to the effect that such person has logged at least 200 hours of solo flight time and is competent to exercise the privilege granted by this section: *Provided*, That two persons may occupy such control seats if each such person is possessed of at least a valid private pilot certificate, *provided further*, That where more than one passenger is carried for hire neither control seat shall be occupied by any person other than a properly certificated limited-commercial or commercial pilot."

REGULATION No. 162: The Board on May 27 adopted Amendment No. 112 of the Civil Air Regulations, SIMULATED INSTRUMENT FLIGHT PRACTICE. The full text of the amendment follows:

Effective May 27, 1941, the Civil Air Regulations are amended as follows:

1. By inserting after section 20.673 a new section to read as follows:

"**20.68 Simulated instrument flight.**—No person shall operate an aircraft under simulated instrument flight conditions unless:

"(a) Fully functioning dual controls are installed in the aircraft;

"(b) Properly certificated pilot occupies the other control seat as safety pilot; and

"(c) Such safety pilot at all times has adequate vision from the aircraft: *Provided*, That if the vision of the safety pilot forward or to either side of the aircraft is obstructed, a competent observer must occupy such a position in the aircraft that his field of vision adequately supplements that of the safety pilot."

2. By striking "20.68 Foreign flights" from the table of contents of Part 20 and inserting in lieu thereof the following:

"**20.68 Simulated instrument flight.**"

REGULATION No. 163: The Board on May 27 adopted Amendment No. 113 of the Civil Air Regulations, COMMERCIAL PILOT FLIGHT CURRICULUM. The full text of the amendment follows:

Effective May 27, 1941, section 50.30 of the Civil Air Regulations is amended to read as follows:

"**50.30 Commercial pilot flight curriculum.**—shall be satisfactory to the Administrator and shall consist of not less than 160 hours of flight time."

Aero Charts

(continued from page 152)

square miles. Radio range at Kirksville aligned and an accumulation of changes since the last edition.

New Edition of Great Circle Aeronautical Chart

No. 3074, May 1941. Size, 27 by 40 inches. Price, 40 cents. In this new edition of the Great Circle Chart of the United States, on the gnomonic projection, the symbols of airports were revised and a number of prominent airports added.

Recognized Dealers

The Coast and Geodetic Survey has announced the addition of the following to the list of dealers authorized to sell charts:

Cutter-Carr Flying Service, West Mesa Airport, Albuquerque, N. Mex.

(The above is a change from Cutter Flying Service, TWA Airport, Albuquerque, N. Mex.)

8 More Classes Complete Airport Aid Training

Eight additional classes will complete instruction under the airport ground servicemen's program during June. This program is a part of a Nation-wide project for the training of airport ground helpers, sponsored by the National Defense Advisory Commission and cosponsored by the Civil Aeronautics Administration and the Office of Education.

Airports at which classes will be completed this month include: Atlanta Municipal, Atlanta, Ga.; Jacksonville Municipal, Jacksonville, Fla.; Memphis Municipal, Memphis, Tenn.; Serv-Air, Raleigh, N. C.; Peter O. Knight, Tampa, Fla.; Columbia Municipal, Columbia, S. C.; and Berry Field, Nashville, Tenn.

1942 C. P. T. Program

The \$25,000,000 appropriation for C. A. A. Civilian Pilot Training in fiscal 1942, authorized by Congress June 11, will permit three training periods during the year as in 1941, Donald H. Connally, Administrator of Civil Aeronautics, announced.

The summer period, first of the three, will get under way immediately and will consist of the following quotas:

Course:	No. of Students	No. of Centers
Private (College and noncollege)	11,020	714
Secondary	3,010	221
Cross-country	2,000	164
Instructor	2,000	164

The new program reduces the number of "beginners" and carries a larger percentage of trainees through advanced courses. By means of the new cross-country and the instructor courses, it will permit production of full-fledged commercial pilots and flight instructors from trainees who took their first flights in the C. A. A. program, General Connally pointed out. This is to meet the expressed need of the air services for additional teaching personnel.

Panagra Granted Amendment for New S. A. Route

Authority for the immediate inauguration of commercial airline transportation to and from Oruro, Bolivia, on its existing route, to Corumba, Brazil, via Cochabamba, Bolivia, and other intermediate points, has been given by the Civil Aeronautics Board to the Pan American-Grace Airways, Inc.

The intermediate points to be served are: Sucre, Vallegrande, Santa Cruz, Concepcion, San Ignacio, San Jose, Robore, Puerto Suarez, Bolivia. The company is authorized to transport passengers, property, and mail.

Application for these authorizations was filed on May 22 by Pan American-Grace Airways, Inc., and was granted the following morning by the Board.

Air Navigation Facilities On June 1

Airports

Airports with servicing ¹	965
Airports with paved runways	277
Airports with two-way radio	379
Lighted airports ²	642
Airports by class:	
Municipal ³	1,025
Commercial ⁴	777
Private ⁵	22
Army ⁶	71
Navy ⁷	26
Misc. Govt. ⁸	41
CAA Int. Flds.	284
Total	2,246

¹ Servicing : hangar, repairs, and fuel available.

² Lighted airport: boundary and beacon and/or flood lights.

³ Municipally operated, with or without servicing.

⁴ Commercially operated, with or without servicing.

⁵ Open to public in emergency only.

⁶ Army-operated, open to civilians in emergency only.

⁷ Navy-operated, open to civilians in emergency only.

⁸ Includes Coast Guard, U. S. Forest Service, etc.

Seaplane Bases

Army, Navy, Coast Guard	33
Other seaplane bases and anchorages	388
Total	421

Seaplane bases having any night lighting equipment

30

Radio Aids

Ranges (8 in Alaska, 2 in Hawaii) 291

Range stations simultaneous (8 in Alaska, 2 in Hawaii) 193

Range stations nonsimultaneous 86

Range stations, no voice 12

Broadcast stations (10 in Alaska, 2 in Hawaii) 118

Broadcast stations simultaneous (8 in Alaska, 2 in Hawaii) 115

Broadcast stations nonsimultaneous (all in Alaska) 3

Marker stations 40

Fan markers 111

Voice (only) station (8 in Alaska) 15

Z Markers (not at range stations) 2

Status of Parts of the Civil Air Regulations and Amendments

As of June 1, 1941

All persons affected by the Civil Air Regulations, including those preparing for examinations for certificates, may obtain required Parts of the Regulations from the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C., without charge.

ONLY PARTS NEEDED SUPPLIED FREE

For example, *pilots* are governed in general by Parts 01, 20, 60, and 98; *aircraft mechanics* by Parts 01, 04, 15, 18, 24, 98, and Section 60.32; and *aircraft engine mechanics* by Parts 01, 04, 13, 14, 18, 24, and 98. It should be remembered that individuals are entitled to receive free of charge only those portions of the C. A. R. which directly govern the activity in which they are engaged.

HOW TO OBTAIN PARTS, AMENDMENTS, AND MANUALS

Those persons not affected by the C. A. R., but desiring all or any part of the Regulations for other purposes, may obtain them as follows: Those Parts on

which a price is listed in the tabulation below are on sale by the Superintendent of Documents, U. S. Government Printing Office (shown as G. P. O. in table), Washington, D. C., and are not available for free distribution except as stated in the first paragraph.

Eventually, all Parts will be placed on sale; meanwhile, Parts not yet on sale (carrying remark in tabulation below "order from C. A. A. only") may be obtained without charge from the C. A. A. upon demonstration of valid interest on the applicant's part.

ALL AMENDMENTS TO THE CIVIL AIR REGULATIONS, AND NOTICE OF NEW PARTS, ARE PRINTED IN THE OFFICIAL ACTIONS SECTION OF THE CIVIL AERONAUTICS JOURNAL, AS RELEASED.

The tabulation below carries in the right-hand column the numbers of all effective amendments to each Part issued subsequent to its publication. Parts ordered from C. A. A. include all

effective amendments, but when Parts are purchased from G. P. O. amendments must be requested separately from C. A. A.

Civil Aeronautics Manuals supplementing certain Parts with detailed interpretations of their respective provisions are issued. They are numbered the same as the Parts they supplement, and those Parts accompanied by Manuals carry appropriate notations. All Manuals are obtained from C. A. A. only.

PARTS CANCELLED AND UNASSIGNED

Cancelled Parts 00, and 03, now incorporated in Part 01; cancelled Part 23, now incorporated in Part 51.; and cancelled Part 25, now incorporated in Part 24. Parts 90-96, inclusive, cancelled. All other Part numbers not shown are unassigned.

Bound volumes of the complete Civil Air Regulations are no longer available. Parts and amendments are punched for filing in loose-leaf binders.

PART NO.	TITLE	DATE	REMARKS	PRICE	EFFECTIVE AMENDMENTS
AIRCRAFT					
01	Aircraft Registration and Airworthiness Certificates.	7-15-40	In stock at C. A. A. and on sale at G. P. O.....	.05	75, 92, 105. Administrator's Amends. No. 1, 2.
02	Type and Production Certificates.....	3-1-41	In stock at C. A. A. and on sale at G. P. O.....	.05	
04	Airplane Airworthiness (Manual 04, 2-1-41).....	5-31-38	Out of stock; to be available soon at C. A. A. and on sale at G. P. O.	.05	601-A-1, 5, 14, 26, 28, 48, 56, 75, 85, 98.
13	Aircraft Engine Airworthiness (Manual not issued).	11-15-40	In stock; order from C. A. A. only.....		
14	Aircraft Propeller Airworthiness (Manual 14, 12-1-38).	11-15-40	In stock; order from C. A. A. only.....		
15	Aircraft Equipment Airworthiness (Manual 15, 7-38).	11-15-40	In stock; order from C. A. A. only.....		
16	Aircraft Radio Equipment Airworthiness (Manual, 2-13-41).	2-13-41	In stock at C. A. A. and on sale at G. P. O.....	.05	
18	Maintenance, Repair, and Alteration of Certified Aircraft and of Aircraft Engines, Propellers, and Instruments. (Manual 18, not yet published.)	6-1-41	In stock; order from C. A. A. only.....		
ARMEN					
20	Pilot Certificates.....	5-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	63, 65, 67, 75, 82, 83, 87, 88, 99, 101, 107, 110, 111, 112,
21	Airline Transport Pilot Rating.....	11-15-40	In stock; order from C. A. A. only.....		87, 101.
24	Mechanic Certificates.....	5-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	44, 61, 73, 75, 87, 109.
26	Air-Traffic Control-Tower Operator Certificates.....	10-4-40	In stock at C. A. A. and on sale at G. P. O.....	.05	87.
27	Aircraft Dispatcher Certificates.....	7-15-40	In stock at C. A. A. and on sale at G. P. O.....	.05	74, 75, 87.
AIR CARRIERS					
40	Air Carrier Operating Certification (Interstate).....	11-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	85, 89, 102.
AIR AGENCIES					
50	Flying School Rating (Manual 50, 12-40).....	11-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	87, 113.
51	Ground Instructor Rating.....	5-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	75, 87.
52	Repair Station Rating (Manual 52, 2-41).....	5-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	75, 84, 87.
53	Mechanic School Rating (Manual 53, 5-40).....	9-15-40	In stock at C. A. A. and on sale at G. P. O.....	.05	75, 87.
AIR NAVIGATION					
60	Air Traffic Rules (Manual 60; Part 1, 12-1-40; Part 2, 8-1-40; Part 3, 12-1-40).	10-4-40	In stock at C. A. A. and on sale at G. P. O.....	.10	80, 86, 90, 93, 102, 104, 106, 108.
61	Scheduled Air Carrier Rules (Interstate).....	1-1-41	In stock; at C. A. A. and on sale at G. P. O.....	.05	91, 94, 97, 100, 102, 103.
MISCELLANEOUS					
98	Definitions	11-15-40	In stock; order from C. A. A. only.....		
99	Mode of Citation of Regulation.....	11-15-40	In stock; order from C. A. A. only.....		

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